

**ABSTRACT OF THE DISCLOSURE**

A wavelength-tunable laser apparatus includes a semiconductor substrate, a Fabry-Perot (FP) laser, and a planar lightwave circuit. The FP laser is formed on the semiconductor substrate at one side thereof, and has a plurality of longitudinal modes. The 5 planar lightwave circuit is formed on the semiconductor substrate at the other side thereof, and includes a waveguide and a clad surrounding the waveguide with a grating carved into a portion of the waveguide. Light outputted from the FP laser is coupled to the waveguide, the grating reflects a plurality of light beams of different wavelengths, and the FP laser is wavelength-locked by one of the light beams reflected from the grating.